

Amendments to the Claims

Claims 1-13. (Cancelled)

14. (Previously presented) A reactive precursor feeding manifold assembly, comprising:

a body comprising a plenum chamber;

a first precursor feed stream on the body in fluid communication with the plenum chamber at a first precursor inlet to the plenum chamber;

a second precursor feed stream on the body in fluid communication with the plenum chamber at a second precursor inlet to the plenum chamber;

a purge gas stream on the body in fluid communication with the plenum chamber at a purge gas inlet to the plenum chamber which is upstream of both the first and the second plenum chamber precursor inlets and angled from the plenum chamber precursor inlets such that a purge-gas flow through the purge gas inlet provides a venturi effect within the plenum chamber relative to the first and second precursor inlets; and

the body comprising a plenum chamber outlet configured to connect with a substrate processing chamber.

15. (Previously presented) The manifold assembly of claim 14 wherein the plenum chamber purge gas inlet is angled from the plenum chamber precursor inlets by from about 80° to 100°.

16. (Previously presented) The manifold assembly of claim 14 wherein the plenum chamber purge gas inlet is angled from the plenum chamber precursor inlets by from about 89° to 91°.

17. (Previously presented) The manifold assembly of claim 14 further comprising a first valve in the first precursor feed stream proximate the body, and a second valve in the second precursor feed stream proximate the body.

18. (Previously presented) The manifold assembly of claim 14 further comprising a 3-way valve in the first precursor feed stream proximate the body.

19. (Original) The manifold assembly of claim 14 further comprising structure on the body configured to mount the body to a substrate processing chamber with the plenum chamber outlet proximate to and connected with a substrate processing chamber inlet.

20. (Previously presented) The manifold assembly of claim 14 wherein the plenum chamber is longitudinally elongated having a longitudinal axis, the plenum chamber having a first longitudinal axis end and a second longitudinal axis end, the plenum chamber purge gas inlet being proximate the first end, the plenum chamber outlet being proximate the second end.

21. (Previously presented) The manifold assembly of claim 20 wherein the plenum chamber purge gas inlet is on the longitudinal axis.

Claims 22-30 (Cancelled)

31. (Previously presented) A reactive precursor feeding manifold assembly, comprising:

a body comprising a plenum chamber, the body having a first end and an opposing second end;

a plurality of precursor feed streams on the body in fluid communication with the plenum chamber at respective precursor inlets to the plenum chamber;

a purge gas stream on the body in fluid communication with the plenum chamber at a purge gas inlet to the plenum chamber which is proximate the first end and disposed upstream of the plenum chamber precursor inlets;

the body comprising a plenum chamber outlet disposed at the second end and configured to connect with a substrate processing chamber; and

structure on the body configured to mount the second end to a substrate processing chamber with the plenum chamber outlet proximate to and connected with a substrate processing chamber inlet.

32. (Original) The manifold assembly of claim 31 wherein the structure comprises a projection on the body.

33. (Original) The manifold assembly of claim 31 wherein the structure comprises a flange.

34. (Original) The manifold assembly of claim 31 further comprising a valve in the respective precursor feed streams proximate the body.

35. (Original) The manifold assembly of claim 31 further comprising a 3-way valve in the respective precursor feed streams proximate the body.

36. (Previously presented) The manifold assembly of claim 31 further comprising a 3-way valve in the respective precursor feed streams proximate the body, one inlet to the 3-way valve being configured for connection with the respective precursor feed stream, another inlet to the 3-way valve being configured for connection with a purge gas line, the another inlet being upstream of the one inlet.

37. (Previously presented) The manifold assembly of claim 31 wherein the plenum chamber is longitudinally elongated having a longitudinal axis, the plenum chamber having a first longitudinal axis end and a second longitudinal axis end, the plenum chamber purge gas inlet being proximate the first end, the plenum chamber outlet being proximate the second end.

38. (Previously presented) The manifold assembly of claim 37 wherein the plenum chamber purge gas inlet is on the longitudinal axis.

Claims 39-44. (Cancelled)

45. (Previously presented) A reactive precursor feeding manifold assembly, comprising:

an elongate body comprising an elongate plenum chamber, the plenum chamber having a longitudinal axis, the plenum chamber having a first longitudinal axis end and a second longitudinal axis end;

the plenum chamber comprising a plurality of precursor inlets received along the longitudinal axis;

respective precursor feed streams on the body feeding to the plenum chamber precursor inlets, the respective precursor feed streams including an elongated segment joining with its plenum chamber precursor inlet and which is oriented substantially normal to the longitudinal axis;

respective multi-inlet valves positioned proximate the body in the respective precursor feed streams, the respective multi-inlet valves having at least two valve inlets and at least one valve outlet, one of the valve inlets being configured for connection with a reactive precursor source, another of the valve inlets being configured for connection with a purge gas line;

a purge gas inlet to the plenum chamber at the first longitudinal axis end and upstream of all precursor inlets to the plenum chamber;

a purge gas stream on the body feeding to the purge gas inlet through a single-inlet valve, the purge gas stream including an elongated segment joining with the purge gas inlet and which is substantially aligned on the longitudinal axis; and

the body comprising a plenum chamber outlet at the second longitudinal axis end configured to connect with a substrate processing chamber.

46. (Previously presented) The manifold assembly of claim 45 wherein the multi-inlet valves have only two inlets and only one outlet.

47. (Original) The manifold assembly of claim 45 wherein the another valve inlet is upstream of the one valve inlet.

48. (Original) The manifold assembly of claim 45 further comprising structure on the body configured to mount the body to a substrate processing chamber with the plenum chamber outlet proximate to and connected with a substrate processing chamber inlet.

49. (Original) The manifold assembly of claim 48 wherein the structure is configured to mount the body to a substrate processing chamber with the longitudinal axis being substantially vertical.

50. (Original) The manifold assembly of claim 48 wherein the structure comprises a projection on the body.

51. (Original) The manifold assembly of claim 48 wherein the structure comprises a flange.

52. (Previously presented) The manifold assembly of claim 45 further comprising structure on the body configured to mount the body to a substrate processing chamber with the plenum chamber outlet proximate to and connected with a substrate processing chamber inlet, the respective multi-inlet valves when the body is so mounted being at least

partially received within peripheral lateral confines of a chamber housing of the substrate processing chamber.

53. (Currently amended) The manifold assembly of claim 52 wherein the multi-inlet valves when the body is so mounted are totally received within peripheral lateral confines of said chamber housing of the substrate processing chamber.

54. (Previously presented) The manifold assembly of claim 45 wherein the plenum chamber purge gas inlet is on the longitudinal axis.

55. (Previously presented) The manifold assembly of claim 45 wherein, the multi-inlet valves have only two inlets and only one outlet; the another valve inlet is upstream of the one valve inlet; and the plenum chamber purge gas inlet is on the longitudinal axis.

56. (Previously presented) The manifold assembly of claim 55 further comprising structure on the body configured to mount the body to a substrate processing chamber with the plenum chamber outlet proximate to and connected with a substrate processing chamber inlet, and wherein the structure comprises a projection on the body.

57. (Previously presented) The manifold assembly of claim 55 further comprising structure on the body configured to mount the body to a substrate processing chamber with the plenum chamber outlet proximate to and connected with a substrate processing chamber inlet, and wherein the structure comprises a flange.

58. (Previously presented) The manifold assembly of claim 45 wherein, the multi-inlet valves have only two inlets and only one outlet; the another valve inlet is upstream of the one valve inlet; and further comprising structure on the body configured to mount the body to a substrate processing chamber with the plenum chamber outlet proximate to and connected with a substrate processing chamber inlet, the structure being configured to mount the body to a substrate processing chamber with the longitudinal axis being substantially vertical.

59. (Original) The manifold assembly of claim 58 wherein the structure comprises a projection on the body.

60. (Original) The manifold assembly of claim 58 wherein the structure comprises a flange.

61. (Previously presented) The manifold assembly of claim 58 wherein the plenum chamber purge gas inlet is on the longitudinal axis.